Attachment 1

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Managing Director & Principal

May 26, 2011

Dr. George Diehr
Chair, Investment Committee
California Public Employees' Retirement System
400 P Street, Suite 3492
Sacramento, CA 95814

Re: Annual Review – Internal Currency Management

Dear Dr. Diehr,

Wilshire has conducted our annual review of the internal currency team's personnel, investment process, and resources. This review was conducted as part of Wilshire's contractual requirement to periodically review all of the internal asset management functions, and included an on-site visit in May 2011. **Overall, we are pleased with the quality of the personnel, systems, and processes, and believe that the Investment Committee should continue to support this internal team.**

There are three functions provided by the internal currency team, and this letter will serve as our review of each. We have also included a multi-page table at the end of this review which is similar to what we would complete for an external manager, detailing our opinion on specific aspects of the currency program.

Changes Since our Last Review

In March 2010, we noted that the currency team had been relocated to the Global Equity trading desk, since the preponderance of activity by the currency team is executing foreign currency transactions for the Global Equity trading desk and building an active currency alpha platform for use by RM ARS.

Since that report to the Investment Committee, the team has been relocated back to the Fixed Income trading desk, one member of the team has been reassigned to other duties, and the remaining members of the team are now tasked with the additional duties of managing the commodities portfolio, swaps, government bonds, and sovereign bonds.

Given that in past reviews of this program we reported that staffing for this team seemed right, we must conclude that the reduction in personnel and addition of duties have left this team understaffed.

As the team ramps up the active currency alpha platform to a size which has been discussed internally at $1 billion, a move which we firmly support, given the success of the active internal strategy, we believe that additional staff may be required by this team to support the recently added responsibilities.

We have also recommended in the past two reviews that the CIO or Investment Committee consider moving the currency team to the risk management / asset allocation area or some other cross-functional team within CalPERS given that the majority of currency activities are generated in other areas within the Investment Office than the Fixed Income unit.

Today, the currency team has evolved far beyond simply a hedging function. The currency team still provides a hedging capability to all asset classes but also conducts foreign currency exchange for other divisions of the investment office and has an alpha generating capability through a developmental active currency trading portfolio.

The currency hedging function was changed a few years ago to cover all CalPERS investments instead of simply Global Equities, but Global Equities is still the majority of CalPERS' foreign currency exposure. Global Fixed Income conducts little foreign exchange on its own, given it has hired non-US external managers for that purpose.

So, where should the currency team go? First, on the basis of solely the currency hedging capability, the currency team should probably be part of the Asset Allocation / Risk Management group. Second, considering only the foreign exchange services the team provides, it should either be in Asset Allocation / Risk Management or Global Equities. Third, the actively managed portfolio best fits within RMARS.

Obviously, the currency team should be located in a single area of CalPERS, but there is no clear best fit – unless the Investment Committee and CIO were to decide that currency is sufficiently important within CalPERS to merit its own reporting line directly to the CIO or COIO. Notional currency exposure is approximately 35% of CalPERS' assets, making it technically the second largest "asset class" within the Fund.

Recommendation on Better Interoperability and Communication with Global Equities

Below, we have noted the excellent job that the currency team has done for the Global Equity portfolios, resulting in a significant reduction in cost. However, while we were interviewing the currency team for this review in 2010, we watched three transactions appear on the trading blotter over the span of a few minutes that were sent from the

Global Equity team. These transactions were somewhat offsetting, with a total value of 900,000 euros but a net value of 100,000 euros (there were two sells and one buy). Staff informed us that had we not been distracting them from trading, they likely would have executed all three trades as they arrived, resulting in higher total transactions costs than if they simply traded the net amount. Staff informed us that offsetting transactions like this are a moderately frequent occurrence. While they would not cause a tremendous impact on the total fund, unnecessary costs are a small drag on returns and should be avoided where possible. Naturally, traders need to balance transactions costs against the opportunity costs of executing too slowly and therefore some of these offsetting transactions are inevitable. In our opinion, better communication regarding pending or upcoming transactions might enable the currency team to understand when they should act quickly and when they should wait until all known trades have been sent through the system.

We raised this issue last year with the SPM for Global Equities and the head of equity trading and both individuals have stated their commitment to improving communication with the currency team, which had been co-located on the equity trading desk at the time of our observations. Since the 2010 review, the team has been moved back to the Fixed Income desk, reducing the opportunity for quick and easy communication with the Global Equity team.

Overview

The three functions performed by the currency team make this a unique group within CalPERS. No other investment unit provides operational support to the entire CalPERS investment office while simultaneously adding value in its portfolios. As this group's responsibilities have grown, staffing dedicated to currency has decreased, indicating that this has been one of CalPERS more cost-effective investment teams. Additional staff (a return to dedicated staffing levels in years past) may be required as the active program increases in size.

The currency team serves three functions: providing a hedge for all CalPERS foreign currency exposure, executing foreign exchange transactions for other asset classes, and managing a developmental active currency portfolio.

Summary of Conclusions

As will be outlined in the sections that follow, we believe that the Passive Currency Overlay portfolio is being managed in a cost-effective manner and in a way that is consistent with the direction from the Investment Committee. We also found that Staff has been able to add value through the internal execution of foreign exchange transactions for other asset classes, and should be encouraged to continue to execute such transactions wherever possible. Finally, we also reviewed CalPERS' policies that apply to these portfolios, and we believe that the team and portfolios are in compliance.

Passive Currency Overlay

CalPERS' internal currency team has provided a currency overlay to partially hedge the foreign currency exposure in the Total Fund. The Investment Committee has determined that the appropriate hedge ratio is 15% of foreign currency exposure in all asset classes, but allows the internal team, together with a committee of several other senior members of the Investment Office, to vary the hedge ratio by +/- 5% based on their prediction of future exchange rate movements based on current market and economic fundamentals. Such models are discussed below in the section that deals with the proposed alpha-generating strategies, although it should be noted that Staff has not used this flexibility to date and the SIO for Fixed Income believes it never will be used.

The appropriate hedge ratio in light of the expanded coverage of the currency hedging program (from hedging only Global Equities assets to all of Total Fund) was discussed at the December 2008 Investment Committee meeting, where the Investment Committee directed Staff to hedge 15% of all foreign currency exposures, +/- 5%, and to pursue the development of a comprehensive risk management and monitoring program that may allow for investment-specific hedging and / or a hedging program that can dynamically react to the market environment. Wilshire and Staff continue to work on this initiative.

To implement this hedge ratio and the +/- 5% bands around it, Staff leverages its relationships with dealers and external managers to survey the best of breed models and then further develop them in-house. Strategies can be broken into four components 1) Fundamental 2) Carry 3) Technical and 4) Volatility. The hedge ratio committee consists of the Chief Investment Officer (CIO), the Senior Investment Officer Fixed Income (SIO), the SIO of Asset Allocation, the Senior Portfolio Manager Fixed Income and the Portfolio Manager of Currency, and Portfolio Manager International Research.

The 5% bands, to date, have been uniformly managed across all foreign exposure. In other words, if the committee believes that CalPERS should be over-hedged by 3%, all currencies are uniformly overhedged 3%. Under policy, however, it appears that Staff has the ability to selectively over-hedge and under-hedge individual currencies. If the committee believes that CalPERS should be overhedged 3%, Staff could hedge the Euro, say, by 5% and the Yen by 1%. This type of quasi-active management may decrease the effectiveness of a purely passively-applied hedge across all currencies.

In our opinion, the Investment Committee at some point should weigh in whether it wishes for the hedge to be applied in a uniform or selective manner. In other words, should Staff have the delegated authority to selectively hedge individual currencies or should the Investment Committee-selected hedge ratio be applied uniformly?

As part of this and past reviews, we have witnessed demonstrations of how CalPERS' Staff calculates CalPERS' currency exposure, calculates the required hedge amounts, solicits bids from third-party commercial banks and investment banks, selects counter-parties, executes trades, and reviews results. We also discussed with Staff any future improvements that they may have for the investment process and the investment philosophy that will underlie any future fluctuation from the target hedge ratio, as allowed by the Investment Committee. During this review, we were presented with demonstrations of new software systems and trading functionality that has been developed since our last review. Staff seems satisfied with the level of technological support provided by CalPERS and we do not see any obvious holes in their systems except that the bidding system that CalPERS Staff uses was built by a consortium of banks. When Staff enters a desired trade, bids/asks from up to five banks can be requested from the 20 on the platform. **In our opinion, as we noted in our review last year, CalPERS should push FXAll to show all 20 banks.** Why should CalPERS trade at less than the best market prices due simply to the random luck of picking the wrong five banks? If customers of FXAll can always choose from all 20 parties, overall market efficiency will be improved. This would also enhance CalPERS' ability to meet its goal of broadly distributing FX trades, as discussed below.

Staff has requested that FXAll move to an all-encompassing dealer display, but the vendor has been unwilling to make the change. During this review, we noted that the variation among the five quoted dealers on a single side of the market was as large as the bid-ask spread, indicating that there is quite a bit of transaction cost reduction that could result from a broader survey of market participants than FXAll is currently providing.

In short, we believe Staff has sufficient resources at its disposal, including a custom-designed (by an external third-party) currency management and trading platform, to achieve the program's goals. Furthermore, we believe Staff has exhibited a high degree of diligence to reduce transactions costs and achieve best execution. Given that Staff selected the trading and management platform in a competitive process, which resulted in full customization of all software to CalPERS' specific needs, we believe that Staff is using high quality technology systems that are appropriate for the currency team's operations.

Over the last three years, many of CalPERS counterparties have either merged with other entities, failed, or converted from Investment Banks to Bank Holding Companies. Continued evolution of the banking industry over the next few years is inevitable. Our review revealed that Staff is clearly committed to distributing its trades among a wide variety of counterparties, and is careful not to execute all of its transactions through a small number of dealers, thereby maximizing the amount of liquidity available to CalPERS. When first explained to us, this seemed counter-intuitive. After all, if one dealer is willing to consistently offer lower fees or better execution, it would make sense that the dealer should win the lion's share of CalPERS' currency trades. However, as Staff explained to us, the danger in such a scenario is that PERS will become too dependent on a single dealer, and may fail to maintain a broad relationship base with other dealers. In the event that the main counterparty became less competitive in the future, Staff may find that it is unable to change to another dealer. Over the last three years, this approach has proven its efficacy as many of CalPERS' counterparties have undergone significant changes. Given CalPERS' broad relationship with many dealers, Staff has been able to continue to operate far more effectively than if they had found themselves beholden to a single bank like Lehman Brothers or Bear Stearns.

Instead of focusing on single dealers, as noted above, Staff rewards the better bidders with larger trades and more trades, while making sure that all trades are well-distributed across all dealers on CalPERS platform. Staff also directly provides feedback to dealers who are less successful in winning a sizeable share of CalPERS' business in an effort to encourage them to bid more aggressively in the future. We believe that this concerted effort to include all dealers and provide feedback to the dealers will help to prevent Staff from being held "hostage" in the future by a single dealer who becomes less competitive, will help provide ongoing liquidity for CalPERS' internal currency transactions, and will help to continue to reduce transactions costs over time. Additionally, by relying on a wide variety of dealers, Staff have been able to leverage CalPERS' unique position within the marketplace to develop their models used in the active programs. The FXAll software, despite its faults with only showing prices from 5 of 20 parties, provides monthly reports to Staff which help to understand which banks are most cost-effective at different kinds of trades. This is an invaluable tool for improving CalPERS future order flow and transactions costs.

As a result of this review, we continue to be confident in the ability of CalPERS' Staff to execute the passive currency hedge program in a cost-effective manner.

Internal Spot Currency Execution

CalPERS conducts a large number of foreign currency transactions when making investments overseas, especially in the Global Equity portfolio, Cash Equitization Program (where cash holdings gain international equity like exposures through the use of futures), Real Estate, Infrastructure, Forestland, and AIM programs. In years past, the execution of foreign exchange transactions from CalPERS' US dollar cash positions to the currency of the acquired asset were handled by third parties. A few years ago, CalPERS' internal currency Staff began offering its services to other asset classes to minimize execution costs. Today, the internal currency team handles all foreign currency transactions required by other sections of the CalPERS investment office, including the Global Equity non-US portfolios, either through their trading platform or through direct contact with individual banks. As a result, as part of our review, we also discussed this internal function and its effectiveness.

We believe that CalPERS has sufficient expertise to conduct the current volume of foreign exchange transactions required by other asset class SIOs, and encourage CalPERS Staff to conduct all foreign exchange possible through the internal team.

A little over a year ago, following a change in the trading platform used by currency Staff, the currency team added the ability to manage all foreign exchange for the Global Equity team. Internal estimates indicate that the currency team has reduced Global Equity's transactions costs for currency by 5 to 10 basis points. To put this in context, assuming that CalPERS has $60 billion in non-US equities and a 20% annual roundtrip turnover rate (10% sold and 10% bought per year), 10bp would equal an annual savings of $12million.

Wilshire believes that the differences in cost and execution effectiveness between the in-house platform and the external banks are a result of incentives. Third-parties, like banks, are rewarded on the basis of transaction volume, and have a substantial incentive to execute as many client transactions as possible, regardless of cost or market impact. Since most currency transactions by other asset classes are periodic activities, there is no mechanism in place for them to effectively reward or punish counterparties for good or bad execution.

In contrast, CalPERS' internal currency team is rewarded for minimizing cost on every trade and for adding value to the total fund. With sufficient notice for illiquid transactions by Real Estate, AIM, etc. (usually at least a few days), Staff can manage the transactions in a manner that seeks to minimize market impact as much as possible. As a result, Staff will usually parcel out a trade for as long as possible, seeking to capitalize on periodic fluctuations in exchange rates. Instead of just jumping into the market, pushing prices up or down, or accepting whatever current price is offered by a bank, Staff will usually slowly trade even smaller transactions over a period of days, seeking to outperform the average exchange rate over the period. While this may occasionally result in a higher cost on the few trades in which the currency's price is moving rapidly, over time this type of slow and patient approach should result in reduced transaction costs, reduced market impact, and superior pricing than reliance on a third-party who is compensated on the basis of trade volume.

This slow approach is obviously not applicable to the Global Equity portfolio since the transactions are executed fairly quickly and at market prices. However, simply having experienced specialists conduct currency transactions instead of piling additional responsibilities on equity traders appears to allow for a significant increase in expertise and reduction in cost.

As a result of both the logical benefits of careful trading, as well as the demonstrated value-added in spot transactions by the currency team, we believe that Staff has demonstrated the ability to execute spot market transactions on behalf of other asset classes in a superior manner to third-parties, and we encourage CalPERS to take advantage of this internal function wherever possible.

Active Currency Management

Since the active program was launched in April 2007, Staff has created 1.44% of total value versus the current benchmark. We recommend continuing to monitor and grow this pilot program to see if it may continue to be a source of value added and can someday be promoted from a pilot program into a significant performance enhancer for the overall CalPERS portfolio. At the current time, the internally-managed RMARS team is considering "hiring" the currency team to manage an active currency portfolio for it, indicating that the RMARS team considers this group to be competitive against an external alternative.

Over the last several years, Wilshire has met with Staff on multiple occasions to review Staff's plans for internal active management of currency as a way to add value to the total fund. A primary cause of this profit potential is the inherent inefficiencies in the currency market due to the existence of non-profit-maximizing investors such as central banks and large multi-national corporations seeking to hedge exposure. To the extent that a profit-maximizing investor can recognize when the market is being driven by such non-profit-seeking players, investment gains can be made over time.

Staff had internally proposed funding the active strategy with up to $1 billion a few weeks ago but has since delayed discussion of that plan. We recommend that the Investment Committee encourage Staff to pursue this program will all due haste, given the excellent performance since inception.

Currency as a return-generating investment is different from most other areas of the CalPERS portfolio. Other investments pay interest or dividends or rents for cash flow and may generate long term appreciation due to growth or development or management value-added. None of these is the case for an active currency program. Much like commodities, added value in currency trading results from directional moves in currency values due to mispricings or macroeconomic factors, or from providing liquidity into the marketplace for currency hedging counter-parties to execute transactions for a "fee" (a case where the benefits of hedging your currency positions exceed the costs you are willing to pay to do so.)

Staff's philosophy is to exploit these inefficiencies in the currency marketplace BEFORE they are fully priced in by the currency markets. To do so, four interrelated strategies have been developed and implemented. These models are:

1) Technical models – price and volume models
2) Carry models – to calculate the cost or benefit of holding a position.

3) Fundamental models – to monitor the economic factors that underlie international payment transfers.
4) Volatility models – help determine the environment with respect to risk factors.

The above 4 categorizations interact. For example, Carry trades work best in low volatility environments. Low volatility can result from stable fundamentals. Technical models monitor prices and can be an indication of a stale trend and potentially increased volatility.

As noted, Staff have leveraged CalPERS' unique position within the marketplace and worked with external dealers and asset managers to develop their own internal portfolio management models. External counterparties realize the benefit of having a major player like CalPERS being an active proponent of currency management and have provided valuable insights. Using this methodology, Staff remains abreast of current developments in the currency market.

To be clear, we do not believe that there is an inherent return from simply investing in long-short currency strategies (assuming interest rate parity holds over long periods of time), as there should be in a long-term investment in equities, fixed income, real estate, or a number of other assets. While we expect stocks, real estate, and private equity to generally increase in value over the next decade, and we expect fixed income to generate yield to investors, we do not see an economic reason why the New Zealand Dollar, for example, should consistently add or lose value relative to the Japanese Yen over that same time frame. Instead, we believe that volatility in interest rates and exchange rates provides an opportunity for profit-maximizing investors to realize trading profits over time.

In its first 3 years of existence, the $100 million internal active currency overlay pilot program has been able to add 144 basis points of cumulative value above the hedged benchmark, and we believe that this program should be continued and expanded to a full size program.

As noted in the introduction, above, and as stated during last year's review, we believe that this program and its benchmark should be restructured to properly reflect the current state-of-the-art of the currency hedging marketplace, as discussed below.

Currently, this program is simply a carve-out of the passive hedge, where Staff is given a bit more discretion to hedge or not hedge certain currencies in the hopes of adding value, and is benchmarked against the hedged benchmark.

In contrast, most external active currency portfolios function in a "pure alpha environment" where the manager simply buys one or more currencies (long) and sells (short) one or more currencies, with a net value of 0 across all positions. Such positions are commonly transacted in the futures/forwards market, requiring no upfront investment.

The benefits of such an approach are that it is simple to calculate performance and evaluate the manager's success or failure. The benchmark for such strategies is 0%. Either the manager was right and his positions generated value or he was wrong and they lost value. This is a far simpler approach than the methodology CalPERS uses involving a hedged benchmark. Second, since this is a futures/forwards-based approach, no capital is committed. The client chooses a total exposure limit they are willing to risk, and the manager builds positions accordingly. If the manager is right, cash flows to the client on maturity of the futures/forwards. If the manager is wrong, cash flows out. Either way, the client can invest all its assets in other strategies and treat this as simply an "overlay" portfolio that requires no allocation of resources.

The downside to this approach for CalPERS is that losing trades will cost the system cash on settlement, resulting in the same kind of outflows that have posed a problem throughout the credit / liquidity crisis. However, in the grand scheme of things, we believe this to be a minor problem. Given the current size of the developmental portfolios, daily cash flows are likely to be in the thousands or hundreds of thousands of dollars size, not in the billions of dollars size that has caused difficulties.

Obviously, since this is a strategy that can add or lose value without an actual cash investment upfront, it does entail leverage. As a result, any expansion of this program from the pilot stage needs to be made consistent with the leverage policy. The leverage risk posed to the portfolio from an expanded portfolio should be carefully considered. However, the total risk to CalPERS from the current benchmark-relative portfolio or our proposed pure alpha approach is identical. The difference is the implementation of the strategy and the means for measuring performance.

We recommend changing this program to a pure-alpha approach with a 0% benchmark. We have discussed this recommendation with the currency management team and they agree that this method is an improvement over current methods.

Risk Factors

CalPERS' currency efforts face a variety of risks. Most of these risks are currency-specific and are well known – volatility, liquidity, etc. Wilshire believes that Staff is monitoring these risks appropriately and has ameliorated many of the currency-specific risks in the portfolio.

However, two of the risks are CalPERS-specific. First, CalPERS has invested in systems and technology to provide the currency team with state of the art tools. However, this should not be viewed as a one-time investment. These tools and systems need to be maintained and upgraded as necessary so that the currency team does not face a competitive disadvantage versus other currency investors. Since currency investing in total is a zero sum game, where the party with the best information and the fastest systems wins, CalPERS must work to keep its tools and systems up to date. At the present time, we believe that all such systems are current, but it is incumbent upon Staff to monitor the progression of industry technology and upgrade as necessary. To this end, Staff has implemented an order processing system (Charles River for now but shifting to another vendor) that, with various Staff safeguards, can enter, record, execute, and confirm trades in one place. This has significantly automated and accelerated the process to transact and has also reduced the probability of errors in translating data between various systems and platforms. As the industry moves forward, Staff should continue to monitor whether this system remains the best platform for trade execution and when further improvements are inevitably needed.

Second, CalPERS, as a governmental organization, faces some organizational risks that for-profit enterprises do not face. For example, non-governmental organizations can induce key employees to stay with the firm by offering ownership in the enterprise. CalPERS cannot match this economic incentive and is more at-risk for losing intellectual capital than a for-profit enterprise would be. This is an ongoing risk for the entire CalPERS organization but is especially meaningful in the currency team given its small size.

Conclusion

In brief, we believe that Staff has demonstrated the ability to both implement the passive currency hedge and to execute cost-effective spot transactions. In addition, we recommend that you encourage the Staff to continue to explore their theories on the value of currency active management as a precursor for a full-scale internal program that may add value to the total portfolio.

Furthermore, as stated above, we recommend reviewing both the reporting structure of the currency team to determine whether Fixed Income remains the best "home" and the structure / benchmark of the actively managed pilot program to bring it in line with best industry practices.

Sincerely,

Michael C. Schlachter, CFA
Managing Director & Principal

Strategy Evaluation: CalPERS Internal Passive Currency Overlay Strategy

Organization (0-100)

SCORE:	**COMMENTS:**
Ownership/Incentives (0-30) Direct Ownership/Phantom Stock Profit Sharing Performance Bonus Depth of Incentives Score: 5	Employees receive performance bonus only. Bonus is driven by multiple factors, some geared around the investment performance generated by the commodity team but others related to total fund performance. This bonus structure is being reevaluated by the plan sponsor. If this bonus structure is frozen / eliminated, we believe the impacts on Staff retention and recruitment will be significant.
Team (0-25) Communication Role of Manager, Research, and Operations Longevity of Team Score: 16	Team has been reduced in size and given additional duties. Expansion of the team may be in order to facilitate greater in-house execution of currency transactions for other asset classes. There is a lead portfolio manager and a secondary portfolio managers, who are no longer dedicated to currency trading. The team members have back-ups from others on the fixed income, if needed. There is also back-up from outside the fixed income unit as members of the equity unit have handled handle their own currency trading for the execution of trades for the international equity index on a parallel system in the past and could step in to execute currency transactions if required. Members of the team have been together for several years. Communication links are informal.
Quality of Key Professionals (0-15) Experience Quality of Leadership Quality of Education Score: 15	Education and technical skill set of portfolio managers and SIO-Fixed Income are exceptionally good, by any standard. The portfolio managers and back-ups have traded currencies before with previous employers and between them have more than 40 years of experience. The SIO-Fixed Income has been with CalPERS the longest of the senior investment staff. This individual has had more than 20 years of internal asset management at CalPERS. Understands risks and issues to be monitored or resolved regarding strategy. Appropriately concerned about process, reporting, and monitoring.

Turnover of Senior Professionals (0-15)
Low (<10%), Medium (<20%), High (>20%)

Score: 3

Staff turnover for CalPERS is high at both the senior and junior levels, including the departure of 3 CIOs and 3 SIOs in the last several years, as well as a number of PMs and SPMs in the past year or two. Lack of long-term retention incentives lead some staff to consider the organization as a "stepping stone" to better compensation in similar positions elsewhere. Turnover for this strategy is a risk. However, there is excellent back-up with two fully-trained portfolio managers assigned to the strategy, now located in a unit with the longest tenure of internal asset management at CalPERS.

Commitment to Improvement (0-15)
Clear Mission
Re-investment
Process Enhance

Score: 15

Strategy has clear mission and objectives. Resources are sufficient to the current tasks assigned to team, and support exists within the organization to add staff or other resources if strategy expands or other demands warrant.

Philosophy/Process (0-100)

SCORE:

COMMENTS:

Market Anomaly/Inefficiency (0-40)
Permanent or Temporary
Clear Identification
Where and How Add Value
Empirical or Academic Evidence to Support

Score: 40

The strategy employs a passive overlay approach whose primary objective is to minimize tracking error versus the benchmark. Actual trading results have proven the efficiency of the team and the cost reductions possible.
"Value-added" has also been achieved relative to the average transaction price for currency exchange conducted on an agency basis for other asset classes.
Highest score given as this is a passive portfolio that has met or exceeded its mandate.
A pilot active strategy has been launched, and has been successful to date, but this is a secondary consideration for the team at this time.

Information (0-15) Unique Sources, Unique Processing Score: 15	Information sources a function of market forces and the selection of dealers for minimizing trading costs. Trade monitoring has allowed for evaluation of the pool of dealers selected for program and proof of concept that internal trading can demonstrate better execution and lower costs than third parties. Highest score given as this is a passive portfolio that has met or exceeded its mandate. A pilot active strategy has been launched, and has been successful to date, but this is a secondary consideration for the team at this time.
Buy/Sell Discipline (0-15) Disciplined/Structured Process Quantitative and Qualitative Inputs Score: 15	Buy/sell discipline based solely on underlying index fund portfolio currency exposures and portfolio managers' knowledge of market factors on day of trade. Controlling trading costs during portfolio re-balancing is key and has been clearly demonstrated.
Portfolio Construction (0-15) Benchmark Orientation Risk Controls Ongoing Monitoring Score: 15	Portfolio construction techniques and monitoring are very good with internally developed and maintained systems. There is a separate monitoring function within the Fixed Income Unit to review this strategy and report separately to the SIO-fixed income. The Strategy has the appropriate policies and procedures on a documented basis in place and a "checklist system" to ensure compliance.
Quality Control (0-15) Return Dispersion Performance Attribution Performance Consistency Style Drift Score: 15	The process has tight risk controls built in, and is independently-monitored within the Unit through a separate reporting line to the SIO-Fixed Income. Within the portfolio management team there is good separation of responsibilities as well as back-up and cross-checks. Further, trade settlement and back-office support is separate from portfolio management. Wilshire has reviewed and had input into the drafting of the procedures manual that covers portfolio management, trading operations systems operations and monitoring. It is very thorough and has been independently reviewed by the SIO-Equity, the SIO-Fixed Income and other CalPERS' investment Staff. The resulting tracking error from the portfolio results has been extremely tight.

Resources (0-100)

SCORE:

COMMENTS:

Research (Alpha Generation) (0-40)

Appropriate for Product Style
Conducted Internally/Externally
Quantitative/Qualitative
Sufficient Databases and Models for Research
How are Research Capabilities Enhanced

Score: 38

Research has been conducted internally in accordance with accepted principles for passive currency management. The majority of research has centered in the development of the appropriate systems and trading execution. These have been more than adequately accomplished. Databases of currency movements and prices obtained from outside sources are available to Staff. Current market information is obtained from several counter-parties. Counter-party credit analysis conducted internally by CalPERS' research staff. Counter-party research should continue to be on-going to ensure the best counter-parties as their capabilities change over time. Staff's leverage of dealers and asset manager research is yielding encouraging results as noted by the early success of the Active Portfolio and the Tactical Management Portfolio.

Information/Systems Management (0-15)

Ability to Manage Large Flows of Data
Appropriate Systems for Research and Management

Score: 15

Hardware and software support is strong. Currency trading and portfolio management tools were custom-designed to CalPERS' specifications by an external vendor.
The entire industry is grappling with appropriate trading cost execution measurement for currency trading. Staff should remain abreast of developments in these areas and CalPERS should continue to be willing to make the necessary systems investment in this area. This strategy is capable of handling a large volume of assets, with trading costs being the only impediment. Staff has demonstrated an appropriate management of costs and has been able to handle billions of dollars in transactions with existing systems.
Information systems shortfalls that have been noted in other areas of the internally managed portfolios do not apply to this group due to its own technology platform.

Marketing/Administration/Client Service (0-15) Dedicated and Knowledgeable Group Quality of Materials/Presentations of RFPs Responsiveness Measuring Client Satisfaction Score: 14	Since marketing and client service are not involved, unlike external sources for such a strategy, full resources of portfolio managers will be devoted to CalPERS, as the portfolio managers will not have to travel to service other clients or market to prospects. End client (Investment Committee) has regular meetings that usually require SIO and Portfolio Manager, but team is able to continue to operate in their absence.
Trading (0-30) Turnover Relative to Process Sophistication of Trading Process Measurement of Trading Costs Soft Dollars in Client Interest Score: 25	CalPERS' trading room is very sophisticated, was constructed in the last few years, and has subscriptions to all of the most popular trading resources, i.e. Bloomberg, Instinet, ITG, WM, etc. Soft dollars will be used on an on-going basis for data feeds only and their use has been highly acceptable. Relative to the potential assets to be managed the soft dollar use will be quite small. Since the underpinning of this strategy lies in the trading, there have been no significant trading issues that should impact the execution of the strategy. There is sufficient back-up and separation of responsibilities in the trading function. There is ex-post review of trading execution, but as with all trading reviews it can be improved.

Discussion

Wilshire's score on this strategy of 82% or 246 out of 300 possible points reflects the strong team and clear success demonstrated at managing the portfolio as charged. This is a slightly lower score than the 84% that resulted from our March 2010, March 2009, February 2007, and March 2006 reviews, and is an improvement from the 77% score (230 points) that Wilshire provided when the strategy was proposed and managed only in "paper" form. The main reasons for a less-than-perfect score overall are largely due to organizational-level issues such as senior management turnover and lack of long-term retention incentives. The reduction in score since last year reflects the reduction in the size of the team and the continuing/increasing turnover in staffing.

Wilshire Associates
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